

## Claims

[c1] **What is claimed is:**

1. **A color filter structure comprising:**  
**a substrate;**  
**a first light-blocking layer positioned within a rim region on the substrate; and**  
**a plurality of conductive color filters positioned on the substrate except the rim region to form a common electrode.**
2. **The color filter structure of claim 1 wherein the conductive color filters are positioned within a central region on the substrate, the central region being opposite to a pixel region on a thin-film transistor substrate.**
3. **The color filter structure of claim 1 wherein the conductive color filters comprise at least a red color filter, at least a green color filter and at least a blue color filter.**
4. **The color filter structure of claim 1 wherein the conductive color filters comprise conductive macromolecular compounds.**
5. **The color filter structure of claim 1 wherein the conductive color filters comprise conductive nanometer par-**

ticles.

- [c6] 6. The color filter structure of claim 1 further comprising a plurality of second light-blocking layers positioned on the substrate except the rim region, the second light-blocking layers being used to avoid light interference between two adjacent conductive color filters.
- [c7] 7. The color filter structure of claim 6 wherein the second light-blocking layers are composed of conductive materials, and each of the second light-blocking layer is partially overlapped with its adjacent conductive color filters.
- [c8] 8. The color filter structure of claim 6 wherein the second light-blocking layers are composed of insulating materials, and each of the conductive color filters contacts its adjacent color filter(s).
- [c9] 9. The color filter structure of claim 1 wherein the first light-blocking layer is composed of insulating materials, the conductive color filters comprise a protrusion extending to the rim region and atop the first light-blocking layer, and the protrusion of the conductive color filters is used as an interconnection contact pad.
- [c10] 10. The color filter structure of claim 1 wherein the first light-blocking layer is composed of conductive materi-

als, the conductive color filters are partially overlapped with the first light-blocking layer, and the first light-blocking layer is used as an interconnection contact pad.

- [c11] 11. A color filter structure comprising:
  - a substrate;
  - a first light-blocking layer positioned within a rim region on the substrate; and
  - a plurality of conductive color filters positioned on the substrate, the conductive color filters being partially overlapped with the first light-blocking layer.
- [c12] 12. The color filter structure of claim 11 wherein the conductive color filters comprise at least a red color filter, at least a green color filter and at least a blue color filter.
- [c13] 13. The color filter structure of claim 11 wherein the conductive color filters comprise conductive macro-molecular compounds.
- [c14] 14. The color filter structure of claim 11 wherein the conductive color filters comprise conductive nanometer particles.
- [c15] 15. The color filter structure of claim 11 wherein each of the conductive color filters contacts its adjacent conductive color filter(s) to form a common electrode on the

substrate.

- [c16] 16. The color filter structure of claim 11 further comprising a plurality of second light-blocking layers positioned on the substrate to avoid light interference between two adjacent conductive color filters.
- [c17] 17. The color filter structure of claim 16 wherein the second light-blocking layers are composed of conductive materials, and each of the second light-blocking layer is partially overlapped with its adjacent conductive color filters.
- [c18] 18. The color filter structure of claim 16 wherein the second light-blocking layers are composed of insulating materials, and each of the conductive color filters contacts its adjacent color filter(s).
- [c19] 19. The color filter structure of claim 11 wherein the first light-blocking layer is composed of insulating materials, the conductive color filters comprise a protrusion extending to atop the first light-blocking layer, and the protrusion of the conductive color filters is used as an interconnection contact pad.
- [c20] 20. The color filter structure of claim 11 wherein the first light-blocking layer is composed of conductive materials and used as an interconnection contact pad.

